

AMENDMENTS TO THE CLAIMS:

1. (Currently Amended) An oral or rectal [[A]] pharmaceutical composition comprising
a pharmaceutically acceptable excipient, and
core-shell particles, said core-shell particles comprising a core component and a shell component, the core component comprising a potassium-binding cation exchange polymer, the shell component comprising a crosslinked synthetic polymer, the synthetic polymer being produced by free radical polymerization of an ethylenic monomer, having a permeability for potassium ion that is higher than the permeability for a competing cation, and being essentially not disintegrated during residence and passage through the gastro-intestinal tract of an animal subject.

Claims 2-9. (Canceled)

10. (Previously Presented) The pharmaceutical composition of claim 1 wherein said shell component polymer is capable of modulating movement of said competing cation into or out of said core-shell particle.

Claims 11-15. (Canceled)

16. (Previously Presented) The pharmaceutical composition of claim 66 wherein said permeability of said shell component polymer to potassium ion is independent of said permeability of said shell component polymer to said competing cation.

17. (Previously Presented) The pharmaceutical composition of claim 1 wherein said core component is physically or chemically attached to said shell component.

Claims 18-19. (Canceled)

20. (Previously Presented) The pharmaceutical composition of claim 66 wherein said shell component polymer exhibits a greater interaction with said competing cation compared to said potassium ion.

21. (Previously Presented) The pharmaceutical composition of claim 66 wherein said shell component polymer repels said competing cation by ionic interaction.

22. (Currently Amended) The pharmaceutical composition or method invention of claim 1 or 45 wherein said shell component is about 1 nm to about 50 μ m thick.

23. (Currently Amended) The pharmaceutical composition or method invention of claim 1 or 45 wherein said core-shell particle is about 200 nm to about 2 mm in size.

24. (Currently Amended) The pharmaceutical composition or method invention of claim 1 or 45 wherein said shell component is about 0.005 microns to about 20 microns thick.

Claims 25-30. (Canceled)

31. (Previously Presented) The pharmaceutical composition of claim 1 wherein said shell component is deposited with a coating process.

32. (Previously Presented) The pharmaceutical composition of claim 1 further comprising an enteric coating.

Claims 33-44. (Canceled)

45. (Previously Presented) A method of removing potassium ion from a gastrointestinal tract of an animal subject suffering from renal insufficiency or renal failure, the method comprising:

administering to the animal subject suffering from renal insufficiency or renal failure a composition comprising core-shell particles, the core-shell particles comprising a core component and a shell component, the core component comprising a potassium-binding cation exchange polymer, the shell component comprising a polymer having a permeability for potassium ion that is higher than a permeability for a competing cation,

binding potassium ion with the core-shell particles in the gastrointestinal tract of the animal subject, and

retaining bound potassium ion with the core-shell particles during residence and passage of the core-shell particles through the gastro-intestinal tract of the animal subject suffering from renal insufficiency or renal failure, such that potassium ion is removed from the gastrointestinal tract of the animal subject by the core-shell particles to obtain a therapeutic and/or prophylactic benefit.

46. (Currently Amended) The pharmaceutical composition or method invention of claim 1 or 45 wherein the core component comprises a crosslinked cation-exchange polymer.

47. (Currently Amended) The pharmaceutical composition or method invention of claim 1 or 45 wherein the core component comprises a cation-exchange polymer comprising acidic functional groups.

48. (Currently Amended) The pharmaceutical composition or method invention of claim 1 or 45 wherein the core component comprises a cation-exchange polymer comprising functional groups selected from the group consisting of carboxylate, phosphonate, sulfate, sulfonate, sulfamate and combinations thereof.

49. (Currently Amended) The pharmaceutical composition or method invention of claim 45 wherein the shell component comprises a crosslinked polymer.

50. (Currently Amended) The pharmaceutical composition or method invention of claim 45 wherein the shell component comprises a crosslinked synthetic polymer.

51. (Currently Amended) The pharmaceutical composition or method invention of claim 1 or 45 wherein the shell component comprises a polymer produced by polymerization of an ethylenic monomer selected from the group consisting of acrylic, methacrylic, styrenic, dienic, vinylic and combinations thereof.

52. (Currently Amended) The pharmaceutical composition or method invention of claim 1 or 45 wherein the shell component comprises a polymer produced by polymerization of a vinylic monomer.

53. (Currently Amended) The pharmaceutical composition or method invention of claim 1 or 45 wherein the shell component comprises a polymer produced by polymerization of an acrylic or methacrylic monomer.

54. (Currently Amended) The method invention of claim [[1 or]] 45 wherein the shell component is essentially not disintegrated during residence and passage of the core-shell particles through the gastro-intestinal tract.

55. (Currently Amended) The pharmaceutical composition or method invention of claim 1 or 45 wherein the core-shell particles retain at least about 50% of the bound potassium ion with the core-shell particles during residence and passage of the core-shell particles through the gastro-intestinal tract.

56. (Currently Amended) The pharmaceutical composition or method invention of claim 45 or 67 wherein the core-shell particles retain at least about 75% of the bound potassium ion with the core-shell particles during residence and passage of the core-shell particles through the gastro-intestinal tract.

57. (Currently Amended) The pharmaceutical composition or method invention of claim 45 or 67 wherein the core-shell particles selectively bind potassium ion over the competing cation during residence and passage of the core-shell particles through the gastro-intestinal tract.

58. (Currently Amended) The pharmaceutical composition or method invention of claim 45 or 67 wherein the animal subject is a human suffering from end stage renal disease (ESRD).

59. (Currently Amended) The pharmaceutical composition or method invention of claim 45 or 67 wherein the animal subject is a human dialysis patient.

60. (Currently Amended) The pharmaceutical composition or method invention of claim 45 or 67 wherein the animal subject is a human suffering from hyperkalemia.

61. (Currently Amended) The pharmaceutical composition or method invention of claim 1 or 45 wherein the shell component is hydrophobic.

62. (Currently Amended) The pharmaceutical composition or method invention of claim 1 or 45 wherein the core component comprises a crosslinked cation-exchange polymer comprising acidic functional groups, and the shell component comprises a crosslinked synthetic polymer.

63. (Currently Amended) The pharmaceutical composition or method invention of claim 62 wherein the shell component is hydrophobic.

64. (Currently Amended) The pharmaceutical composition or method invention of claim 62 wherein the shell component comprises a polymer produced by polymerization of a vinyl monomer.

65. (Currently Amended) The pharmaceutical composition or method invention of claim 62 wherein the shell component comprises a polymer produced by polymerization of an acrylic or methacrylic monomer.

66. (Canceled)

67. (Currently Amended) The pharmaceutical composition of claim 1 ~~[[66]]~~ wherein said core-shell particles bind potassium ion in a gastrointestinal tract of an animal subject suffering from renal insufficiency or renal failure, and retain bound potassium ion during residence and passage of the core-shell particles through the gastrointestinal tract of the animal subject suffering from renal insufficiency or renal failure, such that potassium ion is removed from the gastrointestinal tract of the animal by the core-shell particles to obtain a therapeutic and/or prophylactic benefit.

68. (Currently Amended) An oral ~~[[A]]~~ pharmaceutical composition comprising a pharmaceutically acceptable excipient and core-shell particles, said core-shell particles comprising a core component and a shell component, the core component comprising a potassium-binding cation exchange polymer, the shell component comprising a crosslinked polymer produced by polymerization of an acrylic or methacrylic monomer wherein said shell component is about 0.005 microns to about 20 microns thick and said core-shell particle is about 200 nm to about 2 mm in size and the shell component having a permeability for potassium ion that is higher than the permeability for a competing cation and being essentially not disintegrated during residence and passage through the gastro-intestinal tract of an animal subject.

69. (New) The pharmaceutical composition of claim 1 or 68 wherein the oral pharmaceutical composition is in the form of a powder, tablet, capsule, solution, or emulsion.